

#### ABSTRACT OF THE DISCLOSURE

To provide an active electronic device which is formed from a carbon nanotube and which excels in high frequency operation and an electronic apparatus using the active electronic device. Provided are the active electronic device including: a carbon nanotube (1); a first electrode (S) connected to one end of the carbon nanotube; a second electrode (D) connected to the other end of the carbon nanotube; and a third electrode (G) facing the carbon nanotube (1) to irradiate the carbon nanotube (1) with electromagnetic waves, in which the amount of current flowing into the carbon nanotube (1) is changed by electromagnetic waves, at least high frequency electromagnetic waves, radiated from the third electrode onto the carbon nanotube (1), and the electronic apparatus using the active electronic device.